15.082 and 6.855J

The Goldberg-Tarjan Preflow Push Algorithm for the Maximum Flow Problem
Preflow Push

This is the original network, plus reversals of the arcs.
This is the original network, which is also the original residual network.
The node label henceforth will be the distance label.
\( d(j) \) is at most the distance of \( j \) to \( t \) in \( G(x) \).
Saturate arcs out of node $s$.

Move excess to the adjacent arcs.

Relabel node $s$ after all incident arcs have been saturated.
Select an active node, that is, one with excess
Push/Relabel
Update excess after a push
Select an active node, that is, one with excess

No arc incident to the selected node is admissible. So relabel.
Select, then relabel/push

Select an active node, that is, one with excess
Push/Relabel
Select, then relabel/push

Select an active node.

Push/Relabel
Select, then relabel/push

Select an active node.

Push/Relabel
Select, then relabel/push

Select an active node.

There is no incident admissible arc. So Relabel.
Select, then relabel/push

Select an active node.

Push/Relabel
Select, then relabel/push

Select an active node.

There is no incident admissible arc. So relabel.
Select, then relabel/push

Select an active node.

Push/Relabel
Select an active node.

Push/Relabel
Select an active node.

Push/Relabel
Select, then relabel/push

Select an active node.

Push/Relabel
Select, then relabel/push

Select an active node.

Push/Relabel
There are ways to speed up the last iterations.